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Abstract

This paper endeavors to explore the roles that institutional investors play in acquisition decision of Chinese Public Listed Companies (PLCs). Acquisition decision is assumed as a cost-benefit analysis process of shareholders as strategic alliances. Using micro data in the Chinese stock market during 2003-2008, we find that institutional investors including Qualified Foreign Institutional Investors (QFII), Social Security Funds (SSF), Security Firms (SF) and Security Investment Funds (SIF), as well as tradable share (TS) concentration affect a PLC's acquisition likelihood rather than its annual acquisition size. SSF, SIF and TS concentration can increase acquisition likelihood while QFII decrease it. This paper suggests a strategic alliance model in which institutional investors choose whether to coordinate with controlling shareholder and management. Our paper contributes to the published literature in three ways. First, we offer a conceptual framework to understand the coordination process of acquisition decision in China. Second, we identify which institutional investors could benefit from their monitoring on corporate acquisition through better post-acquisition performance and which could not. Third, we investigate whether institutional investors effectively monitor acquisiton decision or just pick cherry.

Keywords: Corporate Governance; Institutional Monitoring; Acquisition Decision; Coordination
JEL codes: G23, G34, P11

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1. Introduction

Institutional ownership of ordinary shares has increased substantially over the past 10 years in the Chinese stock market. In the early stages of capital market development in the 1990s, the total shares were divided into a major part of non-tradable share (NTS) and a minor part of tradable share (TS) in China.[1] The controlling shareholder of a Chinese Public Listed Companies (PLC) is the largest NTS owners and used to be a government organisation or a State-Owned enterprise (SOE). Hence, institutional investors of Chinese PLCs could only held less than 10% value of the TS market in 2003 (Zeng, Yuan, & Zhang, 2011) when institutional investors such as Qualified Foreign Institutional Investors (QFII), Social Security Funds (SSF) and Security Investment Funds (SIF) were allowed to be founded by law.

The controlling NTS shareholders could misappropriate the assets and harm the interests of minor TS shareholders through such channels as dividend appropriation (Chen, Jian, & Xu, 2009), loans to controlling shareholder (Jiang, Lee, & Yue, 2010) and mergers & acquisitions (Chen & Young, 2010). In order to solve these problems, the Chinese government launched the split share structure reform in 2005 to compensate TS shareholders and allow all shares to be tradable (Firth, Lin, & Zou, 2010). Until 2008, institutional investors had held about 60% of the TS share, as a total of 1,254 Chinese PLCs had accomplished the split share structure reform, representing over 97% of the Chinese A-share market capitalization (Li, Wang, Cheung, & Jiang, 2011; Zeng et al., 2011).

At the same time, acquisitions of Chinese PLCs, as the large and visible corporate investments, have become a very important phenomenon in the Chinese stock market (Peng, Kang, & Jiang, 2013). With the potential for wide disparity between shareholder and manager interests, the total acquisition size of Chinese PLCs had increased more than 5 folds from 50 billion RMB

[1] In this split share structure, NTS cannot be traded in the capital market, while all else is equal with TS (Hu, Tam, & Tan, 2010; Zeng, Yuan, & Zhang, 2011). The TS comprise A-shares, denominated in RMB and traded in the Shanghai and Shenzhen Stock Exchanges; and H-shares, listed in the Hong Kong Stock Exchange (Lee, Rui, & Wu, 2008; Lee, 2009). We focus on the Chinese A-share in this paper.

Yuan in 2003 to 277 billion RMB Yuan in 2008 (see Table 1). Since both acquisition and institutional ownership have become important agendas of corporate management in China, the coincidence of their fast development naturally arouses a very interesting question: Whether or how institutional investors monitor the acquisition decision of the Chinese PLCs?

Researchers like Hartzell and Starks (2003) and Cheng, Huang, Li, and Lobo (2010) argue that institutional investors play an important monitoring role in corporate governance. Theoretically, institutions face the choice between exerting monitoring effort on acquisition for shared gains versus simply trading for private gains (Kahn & Winton, 1998; Maug, 1998; Shleifer & Vishny, 1986). While institutions could focus on improving acquisition performance and choose not to expend effort on trading, Qiu (2008) shows that public pension funds (PPF) are associated with reduced frequency of merger bids. Gaspar, Massa, and Matos (2005) argue that institutional investors with high-turnover portfolios exert little influence on managers with regard to acquisition decisions. Chen, Harford, and Li (2007) point out that only concentrated holdings by independent long-term institutions (ILTI) are related to post-acquisition performance, the presence of which also makes withdrawal of bad bids more likely. Thus, empirical works in literature have been mixed on the effects of institutional ownership on a firm's acquisition decision.

Moreover, these studies are mainly on the capital markets of developed countries especially the USA, which are characterized by diffused corporate ownership and a high level of investor protection, and the main agency problem is the conflict of interest between shareholders and executive managers (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Most emerging capital markets, however, are characterized by concentrated ownership and poor investor protection, which shifts the main agency problem to conflicts of interest between majority and minority shareholders (Hu et al., 2010; La Porta, Lopez-De-Silanes, & Shleifer, 1999; Young, Peng, Ahlstrom, Bruton, & Jiang, 2008). Meyer (2004) doubts whether institutional investors have the necessary power, incentives and capabilities to monitor the corporate governance of PLCs in a

transition economy, even though dispersed ownership and indirect control structures may provide many shareholders with formal rights to monitor firms. Zeng, Yuan, and Zhang (2011) suggest that institutional investors in China be more likely to collude rather than fight against the controlling shareholder and exacerbate the agency problem between majority and minority shareholders, that is, principal-principal conflict (Chen & Young, 2010). Hence, the different roles of institutional investors in an emerging market like China are of great interest both theoretically and in practice.

This paper investigates institutional influences on acquisition decision using an unbalanced dataset of 1,438 PLCs with 7,458 company-years over the period 2003-2008 of the split share structure reform in China. This dataset has provided unique societal quasi-experiments to test the applicability of existing theories of institutional monitoring on the acquisition decision. Our paper contributes to the published literature in three ways. First, we provide a conceptual framework of coordination under uncertainty to investigate whether and how institutional investors could effectively monitor corporate acquisition decision. We find that institutional investors have no significant effect on the ex-post decisions of management on accurate annual acquisition size, but can affect the likelihood of acquisition. And, outsider independent institutions could be more cautious and decrease the likelihood of acquisition, while insider interdependent institutions opt for coordination with the controlling shareholder and increase the likelihood. These results would not change when we truncate or censor the data.

Second, we relate our measures of institutional presence to the post-acquisition performance measures: changes in return on assets (DROA) and earnings per share (DEPS). We find results are broadly consistent with institutional monitoring literature. Specifically, the presence of large holdings by institutions such as Qualified Foreign Institutional Investors (QFII) and Security Investment Funds (SIF), which held more than 25% value of the TS market in 2008 (Zeng, Yuan, & Zhang, 2011), predicting better post-acquisition performance from monitoring effort. Third, we

conduct the Frisch-Waugh-Lovell (FWL) 2-Step model (Frisch & Waugh, 1933; Lovell, 1963) to test the "cherry-picking" effect of institutional investment on acquiring PLCs, which increase our confidence in the monitoring hypothesis.

Our results shed new light on the institutional investor activism in acquisition decision of Chinese PLCs. The rest of the paper is structured as follows: The next section presents a review of the relevant literature and develops the hypotheses; This is followed by a discussion of the methodology used in the study along with the sample selection; We then present the results of the empirical test in section 4; and the implications of the findings along with limitations and potential avenues for future studies are in the last section.

2. Hypothesis development

2.1 Uncertainty in acquisition decision

Acquisition decisions, like other major strategic decisions, involve complexity, ambiguity and lack of structure (Duhaime & Schwenk, 1985). As strategic alliances within the same organisation, the controlling shareholder, management and the institutional investors cannot simultaneously consider or process information of acquisition. Hence, neither shareholders nor management can have perfect information on potential acquisition offers, optimal acquisition size and post-acquisition performance.

In Figure 1, we postulate an acquisition market which offers the stocks and assets for acquisitions randomly following a normal distribution. The management searches the potential acquisition offers in the market and matches them with the effective acquisition demand (AD_{it}) of the Chinese PLC *i* in year *t*, which is contingent upon its financial and governance characteristics (Deng, 2012, 2013). Uncertainty of acquisition market may cause decision-making biases of alliance partners and possibly fail the alliance and acquisition proposal. In order to function in an acquisition market with high uncertainty, as well as to avoid the stress that such ambiguity

produces, the controlling shareholder may use perceptual process or heuristics to simplify information processing and leave the search and match of acquisition on management's discretion (Peng, Kang, & Jiang, 2013). High uncertainty in the acquisition market also makes the controlling shareholder difficult, if not impossible to efficiently monitor the ex post acquisition enforcement of the management. The controlling shareholder has to judge the optimal size of acquisition through gradually learning the acquisition market. In long run, the rational expectation on corporate acquisition should be equilibrated to its effective acquisition demand based on its financial resources and institutional governance, but irrelevant to ownership structure. Thus, we have the first hypothesis as follows:

H1: The management searches and matches the random acquisition offers in the market with the effective corporate demand. At a long run equilibrium, the corporate acquisition is only contingent upon corporate finance and governance, but irrelevant to its ownership structure. It is the "right to manage" hypothesis.

The management, however, possibly chooses the acquisition proposals to maximize their own interest such as higher Chief Executive Officer (CEO) compensation and more power (Kang & Peng, 2014) rather than maximize shareholders' capital return, suggesting an agency problem (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). As the management presents the annual acquisition proposal at the board meeting, the controlling and institutional shareholders could say either yes or no according to their information structure, expected return and optimal strategies. Acquisition happens if and only if the controlling shareholder agrees with the annual acquisition proposal. And then, the institutional shareholders would choose to coordinate with the controlling shareholder or just vote with their feet. Hence, the controlling shareholder has to consider responses of both management and institutional shareholders when the acquisition decision is

made.

In a transition economy like China, more than 70% of the controlling shareholders of PLCs are SOEs (Peng, Kang, & Jiang, 2013). It suggests a two-tier corporate governance system of supervisory and managerial functions. The top board directors are usually ownership representatives of controlling SOEs rather than the traditional individual/family owners of the PLCs. Hence, board directors, as representatives of ownership, have to play the supervisory and executive roles in acquisition decision. When the management holds shares, the negative influences of the principal-agent conflicts would be alleviated. With the separation of the CEO and the chairman of board, the monitoring of shareholders is more efficient than the CEO duality. Hence, the management's acquisition selection should be more cautious (Peng, Li, Xie, & Su, 2010). The second hypothesis is presented as follows:

H2: The board directors supervise and finally decide the CEO's acquisition proposals. The management shareholding and separation of CEO and board chairman could make the management's acquisition selection more cautious. It is the "right to supervise" hypothesis.

Furthermore, the high level uncertainty of acquisition decision tempts the major shareholders (and the board directors) to find strategic alliances and share the risk. The management has better knowledge of acquisition market and corporate resources. The collusion between the major shareholder(s) and the management is widely observed in Chinese PLCs (Zeng, Yuan, & Zhang, 2011). The acquisition proposals are actually designed to reflect the joint interest of major shareholder(s) and the management so that saying yes to the management's proposal is the dominant strategy of the controlling shareholder (see Figure 1). Institutional shareholders, especially holding small stakes and without interdependent business relation, are in the even worse information position than the controlling shareholder, because they join the PLC, or attend the

board only in recent years (mostly after 2003), and could have more interest conflicts with major shareholder(s) and management. The principal-principal conflicts between the major and institutional shareholders may be the main agency problem in Chinese stock market (Chen & Young, 2010). If the colluded management and major shareholder(s) were at the same one end of the interest balance, the institutional and minor shareholders could be at the other end. The more concentrated is the shareholding, the easier are the management and major shareholder(s) to collude in acquisition decision and harm the interests of other shareholders (Chen & Young, 2010). Without efficient monitoring, these acquisition proposals are more likely to be overconfident and bring bad post-acquisition performance. Therefore, we have the third hypothesis:

H3: The more concentrated is the ownership structure, the more likely are the major shareholder(s) and management strategic alliances pro-overconfident acquisition with bad post-acquisition performance. It is the "right to ally" hypothesis.

2.2 Monitoring, Trading and Coordination game

In Figure 1, the decision process of acquisition is depicted as a "coordination game" between controlling shareholder and institutional investors. We assume that the management and controlling shareholder have initially presented the annual acquisition proposal at the board meeting. The institutional shareholders have a cost–benefit analysis of monitoring versus trading. Monitoring calls for both information gathering and efforts to influence controlling shareholder and management, while trading also need gather information and pay transaction cost. Chen, Harford, and Li (2007) argue that monitoring is distinguished from trading by the type of information gathered (in the view of long-term versus short-term interest). And, monitoring makes the effort to influence controlling shareholder and management rather than to simply trade on that information. Hence, an institutional investor that chooses to monitor is taking an active role in

governance but a passive trading position, while institutions that choose not to monitor can be active traders but are passive in firm governance. In the following, we establish a framework of the costs-benefit analysis of monitoring, trading and the coordination, from which we develop specific hypotheses.

Following Bushee (1998) and Chen, Harford, and Li (2007), we classify institutions into four groups by the stake holding size and the interdependence relationship with the controlling shareholder and management: 1) The insider large institutions; 2) The outsider large institutions; 3) The insider small institutions; 4) The outsider small institutions.[2] We argue that monitoring costs decrease with the size of the institutional stake. As long as there is a fixed component to the cost of gathering and analysing information, there will be economies of scale in monitoring. The larger the holdings of an institution, the smaller will be the proportional cost of monitoring. In fact, larger holdings can reduce the total costs of monitoring by giving the institution easier access to management and the board. Institutions with large stake in the Chinese PLCs will have naturally lower monitoring cost functions. On the other hand, monitoring benefits include the ability to influence management, the potential financial gains from executing such influence, and better information. We argue that monitoring benefits increase with the size of the investment stake. The larger its stake in the firm, the more influence it will have with management and the larger will be the financial benefit to the institution from successfully influencing management. Thus, these institutions with large stakes will specialize in monitoring.

Moreover, the information gathering and transaction costs of trading increase with the size of the stake in the firm. As the size of the stake increase, trading costs increase while monitoring

[2] Bushee (1998) classifies institutions into three groups: dedicated, quasi-indexer, and transient, based on their past investment patterns in the areas of portfolio turnover, diversification, and momentum trading. While transient institutions are not expected to exert effort to influence managers, dedicated institutions are likely to perform the full monitoring role of gathering information and attempting to influence managers. A priori, it is uncertain whether quasi-indexers will attempt to perform monitoring functions. Chen, Harford, and Li (2007) define monitoring measure by intersecting ILTIs with those identified by Bushee's method as dedicated and quasi-indexer investors. They identifies institutions with investment styles suited to monitoring activities and that also have a sufficiently long relationship with the acquiring firm to have the potential to influence managers.

costs decrease and benefits increase, such that the net benefits of monitoring will usually dominate those of trading for institutions with large stakes. The monitoring of institutional shareholders on acquisition could decrease the uncertainty of acquisition decision and influence the final acquisition decision of the controlling shareholder. The benefit of institutional monitoring will be shared with the controlling shareholder and management through increasing the post-acquisition performance of the acquiring PLC. Following Chen, Harford, and Li (2007), we hypothesize institutional investors that have maintained large stakes in a firm will specialize in monitoring activities, while other institutional investors may trade instead of monitoring. Hence, monitoring institutions will benefit through their monitoring efforts, but at least some of this benefit will be shared with other stockholders. Based on the above arguments, we have the following hypothesis about institutional monitoring and trading:

H4: Institutions with large stakes prefer monitoring and could increase the post-acquisition performance, while institutions with small stakes prefer trading and could have less positive effect on the post-acquisition performance. It is the "right to choose" hypothesis.

The coordination of shareholders is at the core of acquisition decision in Chinese PLCs. Brickley, Lease, and Smith (1988) argue that some institutional investors (e.g., trust departments of bank) might want to protect existing or potential business relationships with firms and are therefore less willing to challenge the joint decisions of the controlling shareholder and management. In Chinese stock market, Security Investment Funds (SIF) and Social Security Funds (SSF) are usually state owned as most controlling shareholders, so are often regarded as insider institutional investors. Insider institutions face high costs of coordination failures of acquisition decision. They could avoid damaging their relationship with controlling shareholder and management, and losing existing or potential business. Insider institutions have very similar

information structure and interests to the controlling shareholder and management. Hence, they are more likely to be coordinated with the controlling shareholder and management on the acquisition decision.

In contrast, institutions such as Qualified Foreign Institutional Investors (QFII) and Security Firms (SF) are private or foreign owned. They do not seek business relationships with the firms in which they invest, so are often regarded as outsider institutional investors in China. For outsider institutions, however, they may face considerable information and interest gaps because only gradually Chinese PLCs involve outsider shareholders into their strategic management and publish relevant information to them (Meyer, 2004). Outsider institutions without potential business ties face high costs of coordination and more likely to disagree the acquisition decision. Hence, we have hypothesis about insider/outsider institutions as follows:

H5: Insider institutions are more likely to be coordinated with the controlling shareholder and management than outsider institutions. There is a positive association between insider institutional shareholders and acquisition decision, vice versa. It is the "right to coordinate" hypothesis.

The coordination game between controlling and institutional shareholders on acquisition is an iterative process and has a superior equilibrium consistent with players' cost-benefit analysis. Hill and Jones (1992) and Freeman and Evan (1990) place greater emphasis on the process of multiple-stakeholder coordination than on the specific agreements and bargains. If and only if all controlling and institutional shareholders pursue the same decision of acquisition and monitor acquisition jointly, acquisition proposals yield higher returns, but lower returns otherwise. The coordination requires inducing everyone to pursue the same strategy. In other words, the institutional investors' gains to acquisition are higher if all alliance partners are coordinated, so

that there is a "strategic complementarity" (Ball & Romer, 1991). However, these relations are often not clearly defined, and coordination games frequently fail in an environment with high uncertainty. Large institutions can afford monitoring cost and decrease the uncertainty of acquisition. Hence, the coordination of large institutions increases the likelihood and size of acquisition and increase post-acquisition performance by monitoring, which would be the superior equilibrium for acquisition decision. If there were coordination failures for outsider large institutions, positive effect of monitoring on acquisition returns still exist, but will become smaller with less acquisition.

Alternatively, small institutional shareholders can simply trust or reject the controlling shareholder's decisions on the acquisition proposals by using perceptual process or heuristics. Institutional investors with small amount stakes cannot afford monitoring costs to influence the controlling shareholder and management. Hence, they would better just follow the major shareholders and powerful management if they do not want to vote with their feet. This kind of coordination also increase acquisition likelihood and size, but without effective monitoring, would not increase the acquisition returns. Furthermore, the coordination without monitoring (simply trust strategy) may cause the moral hazard problem (Lonsdale, Watson, Sanderson, & Peng, 2014), and encourage bad acquisition with low ex-post performance which may be only accordant to the interests of controlling shareholder and management. On the contrary, small institutional shareholders with a simple rejection strategy cannot increase acquisition returns either, but may avoid bad acquisitions.

Therefore, outsider institutions with large shareholdings clearly benefit from their efforts as monitors, as suggested by Shleifer and Vishny (1986) and Maug (1998). Their monitoring efforts allow them to make favourable portfolio adjustments such as selling their stakes that are likely to make very bad decisions in the year leading up to the actual acquisition. While most of the benefits of their monitoring efforts are shared by other investors in the firm, they do reap some private

gains from their information. In light of the costs and benefits of monitoring versus trading, only insider large institutional investors specialize in providing a coordinated monitoring role and that their efforts generate positive externalities to all shareholders of the acquiring PLC. As argued above, we have the following propositions:

P1: The insider large institutions prefer monitoring and coordination, so are positively associated with corporate acquisition decision and post-acquisition performance.

P2: The outsider large institutions prefer monitoring and no coordination, so are negatively associated with corporate acquisition decision, but positively with post-acquisition performance.

P3: The insider small institutions prefer trading and coordination, so are positively associated with corporate acquisition decision, but negatively associated with post-acquisition performance.

P4: The outsider small institutions prefer trading and no coordination, so are negatively associated with corporate acquisition decision and post-acquisition performance.

(Insert Figure 1 here)

2.3 Cherry-picking and monitoring

If some institutions are good at picking and investing in better-managed firms, the observed relationship between institutional investment and acquisition could be spurious without any active monitoring. The alternative hypothesis is that both institutional presence and acquisitions are endogenous, which suggests no cause-effect relationship between institutional investment and the likelihood or size of acquisition, leave alone the post-acquisition performance. However, under the assumption that all institutions have equal stock-picking ability, we would not expect the monitoring effect to be observed only for institutional shareholders with large holdings (Chen, Harford, & Li, 2007).

Furthermore, we can relax this assumption and assume that some institutional investors specialize in identifying and staying invested in better managed firms. If we can still find evidences of the relationship between institutional investors and likelihood of withdrawing bad acquisitions or supporting good acquisitions even after controlling the corporate finance and governance, an active monitoring role of institutional investor is supported rather than a passive stock-picking strategy. The fact that the strength of the monitoring effect increases in the split share reform along with a general increase in institutional activism is also suggestive of an active monitoring role of institutional investor. Based on these arguments, the last hypothesis is summarized as follows:

H6: Institutional monitoring influences on acquisition decision and post-acquisition performance beyond the cherry-picking by using public information of corporate finance and governance. It is the "right to monitor" hypothesis.

3. Sample formation and empirical strategy

3.1 Data

The empirical tests employ the CCER (China Centre for Economic Research) PLC database of financial statement, corporate governance and institutional investors. This dataset includes all PLCs in the Chinese stock market during the fiscal years 2003-2008. We exclude PLCs subject to special treatment (ST, that is, firms reporting two consecutive annual losses) and financial institutions (Global Industry Standard Classification between 401010 and 403030) because investing and financing activities are ambiguous for these firms. We focus on two samples of Chinese PLCs over the period 2003-2008: 1) the acquiring PLCs sample; 2) the full sample, including all Chinese PLCs.

In Table 1, the full sample of Chinese PLCs has 7,458 company-years over the period 2003 to 2008, while the acquiring PLCs sample has only 2,098 company-years. Hence, the average

acquiring proportion is about 28%. The sum of all deals is up to about 793 billion RMB Yuan (￥). Furthermore, the pattern of the deal is time varying, with much larger deals and more firm-year observations in 2007 (470 PLCs, average annual size about 590 million￥) and 2008 (511 PLCs, average annual size 539 million￥) compared to other years. Thus, more and more Chinese PLCs are now involved into the acquisition activities, as well as increasing annual acquisition size for individual firm. The average annual acquisition size for each acquiring PLCs in 2008 was more than 3 folds that in 2003.

(Insert Table 1 here)

In terms of industry distribution, the average acquiring proportion is much higher than others in Telecommunication Services (36%), Real Estate (34%) and Public utility (31%). We also find that the average annual acquisition size occurring in the Chinese PLCs in industries such as Telecommunication Services (2 billion￥), Energy (0.82 billion￥) and Real Estate (0.71 billion ￥) are much higher than the average level (0.38 billion￥), while firms in the information technology industry have the lowest average annual acquisition size (only 0.11 billion￥). The extremely large annual acquisitions of the PLCs do not follow the normal distribution assumption. To illustrate the importance of considering the density of acquisition, we display kernel density estimators of annual acquisition of the full and acquiring PLCs sample in Figures 2a-f. We obtain the kernel density *f(a)* estimators from observations on annual acquisition by adapting the method introduced by Rosenblatt (1956) and Parzen (1962). The kernel density estimates *f(a)* of a univariate density *f* based on the random sample $A_1, \ldots, A_n$ of size *n* (2,098 for the acquiring PLCs sample and 7,458 for the full sample) is

$$\widehat{f_h}(a) = \frac{1}{nh}\sum_{i=1}^{n} K(\frac{a-A_i}{h}). \quad (1)$$

The kernel functions, *K* used here is Epanechnikov, which is specified and most efficient in minimizing the mean integrated squared error. Most researchers agree that the choice of kernel is not as important as the choice of bandwidth, *h*. There is a great deal of literature on choosing bandwidths under various conditions (Parzen, 1962; Tapia & Thompson, 1978). Common applications typically use a bandwidth $h=0.9m/n^{1/5}$, where *m* is min(s, IQR/1.349), *s* is square root of variance of annual acquisition, *IQR* is the interquartile range of annual acquisition, *n* is the number of observations.

Figure 2a shows that the density of annual acquisition of all acquiring PLCs is seriously skewed by the extremely large cases, which obviously violates the normal distribution assumption. The full samples have an even more skewed distribution than the acquiring sample because non-acquiring PLCs is regarded as 0. In modelling the distributions of annual acquisition size, the lognormal distribution has been particularly useful (Aitchison & Brown, 1963). Hence, we actually focus on the log form of annual acquisition size. Following Richardson (2006) and Hu, Tam, and Tan (2010), a semi-log acquisition function is estimated:

$$\begin{aligned} lnAS_{it} &= \beta_0 + \beta_1 Fin_{it} + \beta_2 Gover_{it} + \beta_3 Inst_{it} + \beta_4 Top5_{it} + \beta_5 Year_t + \beta_6 Ind_j + \varepsilon_{it} \\ &= X_{it}\beta + \varepsilon_{it} \qquad \varepsilon_{it} \backsim (0, \sigma^2 I) \end{aligned} \quad (2)$$

where $lnAS_{it}$ is the log form annual acquisition size of PLC *i* in year *t*; year dummies ($Year_t$) capture time dynamics; industry dummies (Ind_j) control industry fixed effects; ε_{it} is a random error. We examine the relation between annual acquisition size and characteristics of corporate finance (Fin_{it}), governance ($Gover_{it}$) and institutional factors ($Inst_{it}$ and $Top5_{it}$) by testing coefficient vector β, which are semi-elasticity between annual acquisition size and explanatory covariates.

(Insert Figure 2 here)

3.2 Truncated and Censored data

Figure 2b shows that the density of the acquiring PLCs sample has normal distribution with some extremely small values. For example, the bottom 1 percent of the acquiring PLCs sample covers the log acquisition interval from 0 to 13.155. We have two strategies for these extremely small cases:

1) Truncated sample: ignoring the bottom 1 percent, about 20 cases, to get a smaller truncated sample of 2,078 cases (see Figure 2c). The log form acquisition basically follows the normal distribution assumption and can apply the ordinary least-squares (OLS) estimation. And, the truncated regression model (Davidson & MacKinnon, 1993; Greene, 2012) is applied to the truncated acquiring PLCs sample. Hence, given the equation (2): $lnAS_{it} = X_{it}\beta + \varepsilon_{it}$, the log likelihood function for the truncated regression is as follows:

$$lnL = -\frac{n}{2}log(2\pi\sigma^2) - \frac{1}{2\sigma^2}\sum_{i=1}^{n}\sum_{t=2003}^{2008}(lnAS_{it} - X_{it}\beta)^2 - \sum_{i=1}^{n}\sum_{t=2003}^{2008} log\left\{1 - \Phi(\frac{13.155 - X_{it}\beta}{\sigma})\right\} \quad (3)$$

where $\Phi(\,)$ is the standard cumulative normal distribution.

2) Censored sample: replacing all extremely small annual acquisition with the bottom percentile value (that is, 13.155) in the acquiring PLCs sample to keep the full 2098 cases, see Figure 2d. For the full sample, log form annual acquisition of those non-acquiring PLCs are also regarded as 0 (=1 RMB in absolute value), see Figure 2e. And, we can replace all annual acquisition less than the bottom percentile value (that is, 13.155) with this value in the full sample to have the censored whole sample in Figure 2f. The Tobit model would be applied for the censored sample (Cameron & Trivedi, 2010; Tobin, 1958). The log likelihood function for the Tobit

regression is as follows:

$$lnL = D_{it}\left\{-\frac{n}{2}log(2\pi\sigma^2) - \frac{1}{2\sigma^2}\sum_{i=1}^{n}\sum_{t=2003}^{2008}(lnAS_{it} - X_{it}\beta)^2\right\} + (1 - D_{it})\sum_{i=1}^{n}\sum_{t=2003}^{2008} log\left\{\Phi\left(\frac{13.155 - X_{it}\beta}{\sigma}\right)\right\} \quad (4)$$

where D_{it}=0 for censored data; and D_{it}=1 for uncensored data.

3.3 Explanatory variables

Table 2 displays descriptive statistics of log form annual acquisition size (ln*AS*), corporate finance (*Fin*), corporate governance (*Gover*), institutional investors (*Inst*) and TS concentration (*Top5*) for both acquiring and full samples. Corporate financial variables include 7 indicators: sale size, cash holding, intangible asset, leverage, capital expenditure, cash dividend and Tobin's Q ratio. We cannot find much difference for these financial indicators between the acquiring and full samples. It doesn't seem that the acquiring PLCs have better financial conditions or more resources than those not acquiring, casting doubts on the resource-based views or cherry-picking effects on Chinese acquisition.

The corporate governance variables (*Gover*) include 7 indicators: board size, board meeting times, independent directors, management shareholding, duality of chairman and CEO (separation =1; otherwise=0), national ownership (SOEs=1; otherwise=0) and its interaction with duality. There is no much difference for these governance indicators between two samples either, except that the board directors of the acquiring PLCs work harder with more annual board meetings (9.43 times) compared with the average (8.32 times). It also suspects the governance-based views that only better managed PLCs can acquire assets and stocks in Chinese stock market. Thus, we need more explanatory variables and better specification to explore the seemingly random acquisition market.

For institutional variables, we only consider tradable shares owned by institutional investors

and top 5 tradable shareholders because they can choose to sell them in the exchange market rather than accept the coordination of controlling shareholder and management. Hence, our results are comparable with Parrino, Sias, and Starks (2003) that some institutional investors vote with their feet by selling their shares as long as they are not satisfied with the performance of the management.

Currently, there are eleven kinds of investors in the Chinese TS market: 1) QFII; 2) SSF; 3) SF; 4) SIF; 5) trust firms; 6) insurance firms; 7) occupational funds; 8) brokers; 9) financial plans; 10) individuals and 11) others. Among them, we concentrate on the most important four types of institutional investors: QFII, SSF, SF and SIF among the top 10 tradable shareholders. In table 2, we find that there are much more institutional holdings in the acquiring PLCs than the average. And, the TS holdings are more concentrated in the acquiring PLCs (6.54%) than the average (3.14%). It could be cherry-picking effect that institutional investors are pursuing Chinese PLCs with better financial resource and governance which are more likely to acquire. However, this argument is quite implausible because we actually did not find prominent difference of finance and governance between two samples. Moreover, QFII (0.96%) and SIF (2.45%) hold much higher percentages than SSF (0.14%) and SF (0.29%), so they are more likely to monitor acquisition decision. These variables are also applied into truncated equation (3) and censored Tobit model (4) to examine the relation between presence of institutional investors and acquisition decision.

(Insert Table 2 here)

3.4 Measures of post-acquisition performance

Chinese PLCs are increasingly using acquisitions as a vehicle to obtain knowledge or strategic assets, so as to enhance their competitive advantage and performance (Deng, 2012, 2013). The ratio of earnings before interest and taxes to total assets (ROA) is often used as a measure of

operating performance. We then estimate a difference model using the post-acquisition ROA as the left-hand-side variable (DROA), with the responding measures in acquiring year as the right-hand-side variables. The other measure of the quality of the acquisition is the change in the earnings per share after the acquisition event (DEPS). The change in earnings forecast (DEPS) is calculated as the difference between the acquisition completion and the period before acquisition.

$$DROA_{it}=\alpha_0+\alpha_1 QFII_{it}+\alpha_2 SSF_{it}+\alpha_3 SF_{it}+\alpha_4 SIF_{it}+\alpha_5 TOP5_{it}+\mu_{it} \quad (5a)$$

$$DEPS_{it}=\beta_0+\beta_1 QFII_{it}+\beta_2 SSF_{it}+\beta_3 SF_{it}+\beta_4 SIF_{it}+\beta_5 TOP5_{it}+\varepsilon_{it} \quad (5b)$$

3.5 Cherry picking effect

Institutional investors may buy more stocks of Chinese PLCs with better financial performance and institutional governance. According to resource and governance-based views, these PLCs could have higher likelihood to acquire assets and stock and achieve larger-sized deals.[3] This cherry-picking effect may bring a spurious relationship in above specification between institutional investment and acquisition decision. Even though we find contrary evidences in the descriptive statistics in Table 2, we still need more sensitivity tests to disentangle the institutional monitoring effect from the cherry picking process.

If institution variables are highly correlated with finance and governance variables, institution variables may have significantly positive coefficients by getting the positive effects from finance and governance variables. As pointed out by Kennedy (2003), the more collinear two or more regressors are, the more likely it is that they share the significant non-zero effect on the dependent variable. To exclude the possible cherry-picking biases from the estimated monitoring effect of

[3] Bushee, Carter, and Gerakos (2004) show that institutions prefer to invest in firms with good board governance. Better boards can be expected to make better acquisition decisions.

institutional investment, we use the Frisch-Waugh-Lovell (FWL) 2-Step model (Frisch & Waugh, 1933; Lovell, 1963) to test the sensitivity of our results. In step 1, we regress log form acquisition on financial and governance variables, but without institutional variables and get the residual errors, δ_{it}:

$$lnAS_{it}=\alpha_0+\alpha_1 Fin_{it}+\alpha_2 Gover_{it}+\alpha_3 Year_t+\alpha_4 Ind_j+\delta_{it} \quad (6a)$$

And then, we continue regressing the institutional variables on financial and governance variables individually and get the residual error $\mu 1_{it}$-$\mu 5_{it}$:

$$\begin{aligned}
\text{QFII} &= \alpha 1_0+\alpha 1_1 Fin_{it}+\alpha 1_2 Gover_{it}+\alpha 1_3 Year_t+\alpha 1_4 Ind_j+\mu 1_{it} \\
\text{SSF} &= \alpha 2_0+\alpha 2_1 Fin_{it}+\alpha 2_2 Gover_{it}+\alpha 2_3 Year_t+\alpha 2_4 Ind_j+\mu 2_{it} \\
\text{SF} &= \alpha 3_0+\alpha 3_1 Fin_{it}+\alpha 3_2 Gover_{it}+\alpha 3_3 Year_t+\alpha 3_4 Ind_j+\mu 3_{it} \\
\text{SIF} &= \alpha 4_0+\alpha 4_1 Fin_{it}+\alpha 4_2 Gover_{it}+\alpha 4_3 Year_t+\alpha 4_4 Ind_j+\mu 4_{it} \\
\text{TOP5} &= \alpha 5_0+\alpha 5_1 Fin_{it}+\alpha 5_2 Gover_{it}+\alpha 5_3 Year_t+\alpha 5_4 Ind_j+\mu 5_{it} \quad (6b)
\end{aligned}$$

In the Step 2, we regress the estimation of residual errors of equation (6a) on estimation of residual errors of equations (6b). The coefficients βs are semi-elasticity between annual acquisition size and institutional explanatory covariates, excluding the cherry-picking effects from finance and governance.

$$\widehat{\delta_{it}} = \beta_0 + \beta_1\widehat{\mu 1_{it}} + \beta_2\widehat{\mu 2_{it}} + \beta_3\widehat{\mu 3_{it}} + \beta_4\widehat{\mu 4_{it}} + \beta_5\widehat{\mu 5_{it}} + \varepsilon_{it} \quad (6c)$$

4. Empirical Results

We adopt different methods to examine the sensitivity of data sample and hypotheses. Six different

specifications are established to quantify equations (2)-(4). All specifications include year and industry dummies. Columns 1-3 in Table 3 present the very similar estimation results of original, truncated and censored acquiring sample using OLS, truncated regression and Tobit model.

In details, variables of cash holding, leverage and Tobin's Q are significantly positively associated with annual acquisition size as expected. Capital expenditure of Chinese PLCs is also significantly positively associated with annual acquisition size, maybe as complementary investment for acquisition. No significant association is found between sales and annual acquisition size. It suggests that firm size is not so important as cash resources for acquisition decision in the Chinese PLCs. Cash dividend pay-out has no significant effect on acquisition size either, which is consistent with the fact that the Chinese PLCs have no constraints of cash dividend and do not take cash dividend into account when they make the acquisition decision. Chinese PLCs with more intangible assets, possibly being traditional companies with long history and famous brands, are more cautious to acquisition. Thus, regression estimation can detect subtle evidences of resource-based view unidentified in simple description of Table 2. Chinese PLCs with more financial resources can acquire more assets and stocks.

Moreover, board size and annual board meeting times as measures of corporate governance are found to be significantly positively related to annual acquisition size. The portion of independent directors in board is insignificant, casting doubts on their functioning. These results confirm findings in literature that bigger board may bring more irresponsible acquisition while independent directors could not alleviate this problem.

H1 right to manage

Next, we will focus on hypothesis testing. H1 tries to test the relationship between ownership structure and completed acquisition size. From above results, we find the completed acquisition size is really contingent on corporate finance and governance. State Owned Enterprises are

supposed to acquire more because of the external driving forces exercised by the Chinese government at different levels (Deng, 2012, 2013). However, for the ex post acquisition size, we did not find evidence for this argument. The insignificant coefficient of national ownership variable suggests that whether the largest shareholder is stated owned or not has no significant impact on annual acquisition size. The institutional shareholders and top 5 TS concentration are insignificant either, except that the QFII in the Tobit model encourage firm's annual acquisition size. These results are consistent with our Hypothesis 1 that annual acquisition size should be unrelated with ownership structure because the acquisition market offers are random with high uncertainty. It will be the management's right to match the actual market offers with the firm's effective demand after the acquisition decision is made by the board.

H2 right to supervise

Management holding can decrease the acquisition size, maybe through alleviating the agency problem of management's overconfident acquisition matching. The separation of board chairman and CEO obviously provide better monitoring on acquisition as expected. As Hypothesis 2 predicts, board supervision on management such as giving shares to executives or separation of CEO and chairman of board, shows a good monitoring effect and makes acquisition more cautious. We also design an interaction term by multiplying national ownership and departed CEO and Chairman. No significant coefficient is found for this interacted variable.

Column 4-6 present the results of OLS and Tobit model with original and censored full samples. Institutional shareholders now have significant effect on acquisition decision. Since we know from H1 that there is no significant association between institutional shareholders and the completed acquisition size in the acquiring PLCs sample, these significant effects in the full sample must be from the ex-ante acquisition decision on whether the PLC should acquire, rather than the ex-post acquisition decision on how much to acquire. The difference between the

acquiring PLCs sample and full sample reflects the difference between "*right to manage*" and "*right to supervise*", and separation of management and ownership. Hence, outsider institutions of QFII and SF make the acquisition more cautious, while insider institutions of SSF and SIF encourage acquisition happening. Moreover, management holding and CEO-Chairman separation are the effective supervision on management's enforcement of acquisition, but obviously have no significant effect on likelihood of acquisition. At the same time, independent directors cannot affect the annual acquisition size in the acquiring PLCs sample, but they can make the acquisition decision more cautious in the full sample. It is also evidence of the separation of management and ownership in a highly uncertain acquisition market.

H3 right to ally

Table 3 also shows that the concentration of ownership is irrelevant to annual acquisition size in the acquiring PLCs sample, but it is significantly positively associated with the acquisition in the full sample. The more concentrated is the ownership structure, the more likely for the major shareholder(s) and management to ally and make overconfident acquisition decision in their interests. Hence, we find that the Top 5 TS concentration is significantly positively associated with likelihood of acquisition, being consistent with the "*right to ally*" hypothesis. However, strategic alliance between major shareholder(s) and management may endorse the acquisition proposals concordant with their joint interest but damaging interests of institutional and minor shareholders, which could cause serious principle-principle conflicts. We need check the post-acquisition performance to see the consequences of the overconfident acquisitions of allied decision makers.

(Insert Table 3 here)

Table 4 uses the bottom 10% and quarter of DROA and DEPS to measure bad post-

acquisition performance, as well as the top 10% and quarter of DROA and DEPS to measure good post-acquisition performance. We find that the concentration of the top 5 TS shareholders is significantly positively associated with bad performance, but significantly negatively associated with good performance. These are evidences of collusion between the major shareholder(s) and management. This kind of overconfidence decreases efficiency and returns of acquisitions. The concentration of the top 5 TS is significantly associated with more bad acquisitions and less good acquisitions. When institutional investors are large enough to attend the board, they are also likely to join the ally or be coordinated.

H4 right to choose

In Table 4, the institutional investors show different monitoring effect on post-acquisition performance. QFII and SIF have large stakes (see Table 2) and would increase the post-acquisition performance by monitoring the acquisition decision. The Probit regression shows that QFII can increase the likelihood of achieving the top 10% highest acquisition returns measured as both DROA (0.0375) and DEPS (0.0311), and also significantly positively associated with achieving top quarter highest acquisition returns (DROA, 0.0231). SIF with large stakes can increase the likelihood of the good acquisitions (0.0445 for top 10% DEPS, 0.0580 for top quarter DEPS), as well as avoid the bad acquisitions (-0.0644 for bottom 10% DROA, -0.026 for bottom quarter DROA).

Institutions with fewer stakes such as SSF and SF could prefer trading and have no much significant effect on the post-acquisition performance. SSF have the least stake holding (see Table 2) in Chinese PLCs and have even higher likelihood to have extremely bad acquisitions (0.1919 for bottom 10% DROA). SF have comparably more stake holding than SSF and can have higher likelihood to have moderate good acquisition (0.0302 for top quartile DROA). These results are consistent with *H4* that institutions with large stakes could increase the post-acquisition

performance through monitoring, while institutions with small stakes prefer trading and could have less positive effect on the post-acquisition performance. Different institutional investors choose a balance point between the monitoring and trading.

H5 right to coordinate

QFII are owned by foreign investors who have large stakes but have no other interdependent business relationship with the PLC. SF is mainly private-owned and independent from the business scope of the Chinese PLC. Consequently, these two institutional shareholders are regarded as outsider institutions in China and difficult to coordinate, because about 70% of the controlling shareholders of Chinese PLCs are SOEs (see Table 2). We can find a significantly negative association between outsider shareholders and acquisition in Table 3. QFII and SF are more likely to reject the annual acquisition proposal and fail the coordination. In literature, SSF and SIF are independent institutions, but they are insider instiutions in China because these two institutions are also SOEs just as most controlling shareholders. Hence, SSF and SIF are more likely than QFII and SF to be coordinated with the controlling shareholder and management. There is a positive association between SSF/SIF and acquisition in Table 3.

Propositions 1-4

Combining results in Table 3 and 4, we can test Propositions 1-4. According to the *Securities Investment Fund Law of P.R.C 2003*, SIF have been always founded by the public-owned banks in China, which have other business links with the PLCs they invested. Hence, SIF are insider institutions with large stakes. We find a positive association between SIF and acquisition decision, and better post-acquisition performance. As large institutions, SIF would monitor the acquisition and share the benefits with other shareholders. These monitoring efforts can effectively alleviate the opportunism of the controlling shareholder and management, and increase the acquisition

returns. Hence, the monitoring effort of SIF can influence the controlling shareholder and management and finally achieve coordination within the board. This superior equilibrium is the optimal result in which efficient acquisition is encouraged.

China's SSF were founded in early years of the 2000s and also public-owned, according to the *National Social Security Funds Investment Management Interim Regulation* in 2001. SSF were insider institutional shareholders because of their national ownership. SSF, as free riders have to trust their alliances in the board on acquisition decision, because they are too small during our period to monitor the acquisition. SSF's trading strategy can have cost advantage of free insider information on acquisition decision. However, this kind of trust without monitoring encourages over-confidence and opportunism in the acquisition decision of the PLCs and will decrease the post-acquisition performance. Thus, we find positive association between SSF and acquisition decision, and insignificant or even negative association between SSF and post-acquisition performance.

The outsider large institutions like QFII prefer monitoring and share benefits with other shareholders. Their monitoring effort can improve acquisition quality, but their independent status lacks of the necessary business channels to communicate with the controlling shareholder and management. Coordination failure makes the acquisition decision too cautious. According to the *Qualified Foreign Institutional Investors Investment Management Interim Regulation* in 2002, the first QFII were founded in 2003. There is negative association between QFII and acquisition decision, and positive association with post-acquisition performance. Hence, QFII decrease the likelihood of acquisition, but can grasp the best acquisitions. SF have been the oldest institutional investors in China since the 1990s. The main revenues of SF are actually from the service of transaction rather than investment into PLCs. Hence, these outsider small institutions prefer trading strategy. Their independent businesses have no extra links with the PLC, so also difficult to be coordinated. SF can help more cautious acquisition decision. However, they cannot help

improve acquisition efficiency. The association between SF and post-acquisition performance should be insignificant.

(Insert Table 4 here)

H6 right to monitor

While our results suggest that institutional shareholders with large stakes actively monitor management and get better post-acquisition performance, we cannot completely rule out the possibility that our results are due to endogeneity or other causes for a spurious correlation between good post-acquisition performance and concentrated holdings. The most likely alternative explanation is that institutions are good at picking and investing in better-managed firms, leading to the observed relation without any active monitoring. Considering Chinese institutional investment has been existent and fast growing only since 2003, their development and activism were accompanied with the split share reform which was exogenous dynamic process for our study. Thus, our data covering the specific reform period can provide a natural societal experiment to test the applicability of existing theories of institutional monitoring on the acquisition decision.

Further, we discuss results from additional tests below that increase our confidence in the monitoring hypothesis. In Table 5a, the first step of the FWL model is applied to the acquiring PLCs sample to exclude the effect of public information of corporate finance and governance. We can find the institutional variables are mainly correlated with financial variables. Only QFII and the concentration of the top 5 TS shareholding are significantly positively associated with board size, meeting times and independent director ratios. SSF are significantly positively associated with board size. The characteristics of corporate finance and governance could affect annual acquisition size and institutional investment simultaneously. However, when we use the second

step of the FWL model to regress the residual annual acquisition size on residual institutional variables, insignificant results still hold. It suggests that our conclusion on the "*right to manage*" hypothesis is robust after we controlled the corporate financial and governance in the completed acquisition.

We also apply this test in the full sample. The significant effects of institutional investors still hold in the residual regressions. QFII and SF are still negative to acquisition decision, while SSF, SIF and Top5 still positive. It suggests that our conclusion on the "*right to supervise*" and "*right to ally*" hypotheses are robust after we controlled the corporate financial and governance in the full sample. Institutional investors monitor further information on acquisition to help choose different coordination strategy. Hence, institutional shareholder could make influence on acquisition decision even after corporate finance and governance are controlled.

We do not need test the post-acquisition performance since we have done the differencing of financial performance in Table 4. Those fixed components of corporate financial and governance over time have been controlled. Under the assumption that all institutions have equal stock-picking ability, we would not expect the monitoring effect to be only observed for all institutional investors with large holdings such as SIF and QFII, and not for SSF and SF. Furthermore, we can relax this assumption and assume that SIF and QFII specialize in identifying and staying invested in better-governed firms. However, SIF is coordinated with the acquisition proposal and can help avoid bad deals or get better deals, in contrast to QFII's coordination failures but still strive to get better acquisition. We believe that the results from Table 3, 4 and 5a-b suggest an active monitoring role of these large institutional shareholders rather than a passive, stock-picking strategy. The "*right to monitor*" and "*right to coordinate*" remains even if we control for finance and governance as determinants of institutional holdings.

(Insert Table 5a-b here)

5. Discussion and Conclusions

There have been few studies of merger and acquisition in China (Peng, 2006), and even more scare are the studies of the institutional activism on acquisition decision. Although institutional investors in China have formed a powerful party in the board of most Chinese PLCs (Zeng, Yuan, & Zhang, 2011), this increasing dominance in the equity market contrasts with our limited understanding of the roles that institutional investors play in corporate governance. The extant literatures mention little about the monitoring function of institutional investors in the Chinese PLCs' acquisition. With recent available data of the Chinese stock market, we find evidence that large institutional investors such as SIF and QFII more likely monitor the acquisition and make influence on the controlling shareholder and management, while other small investors such as SSF and SF would rather choose trading as a priority strategy.

The results in our study depict an intuitive cost-benefit analysis on institutional monitoring versus trading: when monitoring benefits exceed costs, institutional investors would monitor rather than trading. Their monitoring activities may improve the efficiency of searching and matching in the acquisition market and share the benefit with other stakeholders. Our evidence on the relation between institutional holdings and acquisition efficiency shows that monitoring of institutional shareholders (such as SIF and QFII) can grasp good acquisitions and avoid bad acquisitions. Thus, these institutions are active in influencing management's decision to reverse a bad decision.

This paper also sheds new light into the coordination process of acquisition decision in an emerging market like China. Interdependence between institutions and the Chinese PLC, or its controlling shareholder and management, determines whether they are coordinated with the joint acquisition proposals of the controlling shareholder and management. Outsider institutions such as QFII and SF more likely fail in coordination, while insider institutions such as SIF and SSF are

more willing to cooperate and encourage the corporate acquisition. Thus, the (un)successful coordination can (restrict) broaden the effect of monitoring and trading.

Our research provides a unique societal experiment on the monitoring effect of institutional investment as well as the shareholding structure on a Chinese PLC's acquisition decision and its post-acquisition performance. However, because of data limitation, detailed information of the monitoring and coordination process of institutional investors, such as board voting results are unavailable. While we postulate a strategic alliance model between the controlling shareholder and management, institutional investors have developed from nothing to powerful bargaining parties in corporate management since the split share structure reform in 2005. More accurate conceptual models and empirical investigation should be done in future research, and will continuously induce great interest of both academia and practitioners in China and the greater world.

References

Aitchison, J. & Brown, J. A. C. 1963. The Lognormal Distribution with Special Reference to Its Uses in Economics. ***Cambridge University Press***

Ball, L. & Romer, D. 1991. Sticky Prices as Coordination Failure. ***The American Economic Review***, 81(3): 539-552.

Brickley, J. A., Lease, R. C., & Smith, C. W. J. 1988. Ownership Structure and Voting on Antitakeover Amendments. ***Journal of Financial Economics***, 20: 267-291.

Bushee, B. 1998. The influence of institutional investors on myopic R&D investment behavior. ***Accounting Review***, 73: 305–333.

Bushee, B., Carter, M., & Gerakos, J. 2004. Do institutional investors really care about corporate governance. ***working paper. University of Pennsylvania***.

Cameron, A. C. & Trivedi, P. K. 2010. Microeconometrics Using Stata. ***Rev. ed. College Station, TX: Stata***

Press.

Chen, D., Jian, M., & Xu, M. 2009. Dividends for tunneling in a regulated economy: The case of China. ***Pacific-Basin Finance Journal***, 17: 209–223.

Chen, X., Harford, J., & Li, K. 2007. Monitoring: Which institutions matter? ***Journal of Financial Economics***, 86(2): 279-305.

Chen, Y. Y. & Young, M. N. 2010. Cross-border mergers and acquisitions by Chinese listed companies: A principal-principal perspective ***Asia Pacific Journal of Management***, 27(3): 523–539.

Cheng, C. S. A., Huang, H. H., Li, Y., & Lobo, G. 2010. Institutional monitoring through share holder litigation. ***Journal of Financial Economics***, 95: 356-383.

Davidson, R. & MacKinnon, J. G. 1993. Estimation and Inference in Econometrics. ***New York: Oxford University Press***.

Deng, P. 2012. The internationalization of Chinese firms: A critical review and future research. ***International Journal of Management Reviews***, 14(4): 408–427.

Deng, P. 2013. Chinese Outward Direct Investment Research: Theoretical Integration and Recommendations ***Management and Organization Review***, 9(3): 513–539.

Duhaime, I. M. & Schwenk, C. R. 1985. Conjectures on Cognitive Simplification in Acquisition and Divestment Decision Making. ***The Academy of Management Review***, 10(2 (Apr.)): 287-295.

Firth, M., Lin, C., & Zou, H. 2010. Friend or Foe? The Role of State and Mutual Fund Ownership in the Split Share Structure Reform in China. ***Journal of Financial and Quantitative Analysis***, 45(3): 685-706.

Freeman, R. E. & Evan, W. M. 1990. Corporate governance: A stakeholder interpretation. ***The Journal of Behavioral Economics***, 19(4): 337-359.

Frisch, R. & Waugh, F. 1933. Partial time regressions as compared with individual trends. ***Econometrica***, 45: 939-953.

Gaspar, J., Massa, M., & Matos, P. 2005. Shareholder investment horizons and the market for corporate control. ***Journal of Financial Economics***, 76(1): 135-165.

Greene, W. H. 2012. Econometric Analysis. ***7th ed. Upper Saddle River, NJ: Prentice Hall***.

Hartzell, J. C. & Starks, L. T. 2003. Institutional Investors and Executive Compensation. ***The Journal of Finance***, 58(6): 2351-2374.

Hill, C. W. & Jones, T. M. 1992. Stakeholder - Agency Theory. ***Journal of Management Studies***, 29(2 (March)): 131-154.

Hu, H. W., Tam, O. K., & Tan, M. G.-S. 2010. Internal governance mechanisms and firm performance in China. ***Asia Pacific Journal of Management***, 27: 727–749.

Jensen, M. C. & Meckling, W. H. 1976. Theory Of Firm - Managerial Behavior, Agency Costs And Ownership Structure. ***Journal of Financial Economics***, 3(4): 305-360.

Jiang, G., Lee, C. C., & Yue, H. 2010. Tunneling through intercorporate loans: The China experience. ***Journal of Financial Economics***, 98: 1-20.

Kahn, C. & Winton, A. 1998. Ownership structure, speculation, and shareholder intervention. ***The Journal of Finance***, LIII(1): 99-129.

Kang, L. & Peng, F. 2014. Acquisition Premiums of Executive Compensation in China: a Matching View. ***MPRA Paper 55766, University Library of Munich, Germany***.

Kennedy, P. 2003. Guide to Econometrics. ***Blackwell Publishers; 5th Revised edition***.

La Porta, R., Lopez-De-Silanes, F., & Shleifer, A. 1999. Corporate Ownership Around the World. ***The Journal of Finance***, LIV(2): 471-517.

Lee, B.-S., Rui, O., & Wu, W. 2008. Market Segmentation and Stock Prices Discount in the Chinese Stock Market: Revisiting B-share Discounts in the Chinese Stock Market. ***Asia-Pacific Journal of Financial Studies***, 37(1): 1-40.

Lee, H.-W. 2009. The Price Premium of China A-Shares over Hong Kong H-Shares: A Further Visit of the Liquidity Hypothesis. ***Asia-Pacific Journal of Financial Studies***, 38(5): 657-694.

Li, K., Wang, T., Cheung, Y.-L., & Jiang, P. 2011. Privatization and Risk Sharing: Evidence from the Split Share Structure Reform in China. ***The Review of Financial Studies***, 24(7): 2499-2525.

Lonsdale, C., Watson, G., Sanderson, J., & Peng, F. 2014. Beyond Intentional Trust: Supplier Opportunism and Management Control Mechanisms in Public Sector Procurement and Contracting. ***Policy and Politics***.

Lovell, M. 1963. Seasonal adjustment of economic time series. ***Journal of the American Statistical Association***, 58: 993-1010.

Maug, E. 1998. Large shareholders as monitors: Is there a trade-off between liquidity and control? . ***The Journal of Finance***, 53(1): 65-98.

Meyer, K. E. 2004. Stakeholder influence and radical change: a coordination game perspective. ***Asia Pacific Journal of Management***, 21: 235–253.

Parrino, R., Sias, R. W., & Starks, L. T. 2003. Voting with their feet: institutional ownership changes around forced CEO turnover. ***Journal of Financial Economics***, 68(1): 3-46.

Parzen, E. 1962. On estimation of a probability density function and mode. ***Annals of Mathematical Statistics***, 33: 1065–1076.

Peng, F., Kang, L., & Jiang, J. 2013. Selection and institutional shareholder activism in Chinese acquisitions. ***Management Decision***, 51(1): 141 – 162.

Peng, M. W. 2006. Making M&A fly in China. ***Harvard Business Review***, 84(3): 26.

Peng, M. W., Li, Y., Xie, E., & Su, Z. 2010. CEO duality, organizational slack, and firm performance in China. ***Asia Pacific Journal of Management***, 27(4): 611–624.

Qiu, L. 2008. Selection or Influence? Institutional Investors and Corporate Acquisitions. ***available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1126430***

Richardson, S. 2006. Over-investment of free cash flow. ***Review of Accounting Studies***, 11(2-3): 159-189.

Rosenblatt, M. 1956. Remarks on some nonparametric estimates of a density function. ***The Annals of Mathematical Statistics***, 27: 832-837.

Shleifer, A. & Vishny, R. W. 1986. Large Shareholders and Corporate Control. ***The Journal of Political Economy***, 94(3, Part 1): 461-488.

Shleifer, A. & Vishny, R. 1997. A survey of corporate governance. ***Journal of Finance***, 52: 737-783.

Tapia, R. A. & Thompson, J. R. 1978. Nonparametric Probability Density Estimation. ***Baltimore: Johns Hopkins University Press***.

Tobin, J. 1958. Estimation of Relationships for Limited Dependent Variables ***Econometrica***, 26(1): 24–36.

Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., & Jiang, Y. 2008. Corporate governance in emerging economies: A review of the principal–principal perspective. ***Journal of Management Studies***, 45(1): 196–220.

Zeng, Y., Yuan, Q., & Zhang, J. 2011. Dark Side of Institutional Shareholder Activism in Emerging Markets: Evidence from China's Split Share Structure Reform. ***Asia-Pacific Journal of Financial Studies***, 40: 240–260.

Table 1: Annual acquisition of Chinese PLCs by industry, 2003-2008

Year/Industry	PLCs number	Acquiring PLCs number	Acquiring PLCs (%)	Total acquisition (Million￥)	Average acquisition (Million￥)
2003	1,073	298	28	50,747	170
2004	1,167	294	25	75,640	257
2005	1,180	236	20	35,952	152
2006	1,259	289	23	77,959	270
2007	1,362	470	35	277,219	590
2008	1,417	511	36	275,378	539
Average	1,243	350	28	132,149	378
Total	7,458	2,098		792,895	
Energy	218	61	28	50,248	824
Raw materials	1,497	390	26	171,909	441
Industrials	1,549	424	27	213,981	505
Non-daily consumption	1,526	453	30	87,823	194
Daily Consumptions	514	144	28	19,604	136
Medical and health care	532	158	30	27,113	172
Real Estate	572	192	34	136,772	712
Information Technology	672	157	23	16,911	108
Telecommunication Services	14	5	36	10,040	2,008
Public utility	364	114	31	58,495	513
Average	746	210	28	79,290	378
Total	7,458	2,098		792,895	

Data source: the CCER PLC database 2003-2008.

Table 2a Variable Statistics Description, Acquiring sample (Obv N =2,098)

Variable	Mean	SD	Min	Max
Log Acquisition Scale	17.87	2.02	0.00	24.48
Log Sales	18.36	6.93	0.00	27.67
Log Cash	19.47	1.43	0.00	24.55
Log Intangible Asset	16.50	4.65	0.00	23.88
Leverage	0.50	0.18	0.00	1.90
Log Capital Expenditure	18.36	1.83	8.71	26.13
Cash Dividend	0.09	0.14	0.00	3.00
Tobin's Q	1.71	0.99	0.15	4.59
Board Size	6.31	1.64	2.00	17.00
Meeting times	9.43	3.80	1.00	36.00
Independent Director	55.25	13.17	0.00	100.00
Management holding	3.32	8.95	0.00	78.38
Duality	0.90	0.30	0.00	1.00
National Owner	0.65	0.48	0.00	1.00
National owner *Duality	0.58	0.49	0.00	1.00
QFII†	0.96	4.88	0.00	45.64
SSF	0.14	0.45	0.00	6.26
SF	0.29	1.78	0.00	58.37
SIF	2.45	4.06	0.00	29.08
TOP5	6.54	7.83	0.05	58.74

Data source: the CCER PLC database 2003-2008.
†Institutional shareholders (QFII, SSF, SF and SIF) and top 5 TS shareholders (TOP5) are weighted proportions of total shares (including NTS and TS) using total assets of PLCs as weights.

Table 2b Variable Statistics Description, Full sample (Obv N=7,458)

Variable	Mean	SD	Min	Max
Log Acquisition Scale††	5.03	8.10	0.00	24.48
Log Sales	18.57	6.45	0.00	27.67
Log Cash	19.27	1.46	0.00	25.21
Log Intangible Asset	15.98	5.01	0.00	23.89
Leverage	0.50	0.40	0.00	16.33
Log Capital Expenditure	18.08	1.85	8.58	26.13
Cash Dividend	0.08	0.13	0.00	3.00
Tobin's Q	1.78	1.08	0.15	8.05
Board Size	6.32	1.62	1.00	19.00
Meeting times	8.32	3.45	1.00	36.00
Independent Director	55.05	13.29	0.00	100.00
Management holding	3.41	9.85	0.00	95.05
Duality	0.90	0.30	0.00	1.00
National Owner	0.68	0.47	0.00	1.00
National owner *Duality	0.62	0.49	0.00	1.00
QFII	0.39	3.08	0.00	45.64
SSF	0.06	0.29	0.00	6.26
SF	0.15	1.36	0.00	58.37
SIF	1.04	2.83	0.00	29.08
TOP5	3.14	6.24	0.05	60.10

Data source: the CCER PLC database 2003-2008.
†† Log form acquisition size is regarded as 0 (lnAS=0) for non-acquiring PLCs.

Table 3: Regression analysis of annual acquisition size, Chinese PLCs 2003-2008

Dependent variable= log form annual acquisition size	(1) Acquiring Sample	(2) Truncated Acquiring Sample	(3) Censored Acquiring Sample	(4) Full Sample	(5) Full Sample	(6) Censored Full Sample
	OLS	TRUNCAT	TOBIT	OLS	TOBIT	TOBIT
Log sale	0.0019	-0.0056	0.0005	0.0283*	0.0974**	0.0301**
	(0.0063)	(0.0055)	(0.0056)	(0.0145)	(0.0495)	(0.0138)
Log cash holding	0.1550***	0.1749***	0.1592***	0.0325	-0.0238	0.0420
	(0.0340)	(0.0310)	(0.0302)	(0.0715)	(0.2516)	(0.0707)
Log intangible asset	-0.0224**	-0.0166**	-0.0189**	0.0327*	0.1451**	0.0346*
	(0.0095)	(0.0083)	(0.0085)	(0.0182)	(0.0667)	(0.0186)
Leverage	0.4158*	0.2738	0.3261	-0.1566	-1.4280	-0.2896
	(0.2416)	(0.2117)	(0.2145)	(0.2191)	(1.1727)	(0.3192)
Log capital expenditure	0.2228***	0.2017***	0.2090***	0.2737***	0.8621***	0.3029***
	(0.0292)	(0.0259)	(0.0259)	(0.0599)	(0.2128)	(0.0597)
Cash dividend	0.4065	0.3615	0.3671	-1.3953**	-5.3338**	-1.3687**
	(0.3111)	(0.2710)	(0.2762)	(0.6832)	(2.4075)	(0.6709)
Tobin's Q	0.1428***	0.1214***	0.1273***	-0.1649*	-0.7259**	-0.1525*
	(0.0429)	(0.0374)	(0.0381)	(0.0847)	(0.3080)	(0.0860)
Board size	0.0676**	0.0624**	0.0645**	-0.1135*	-0.4316**	-0.0977
	(0.0293)	(0.0255)	(0.0260)	(0.0624)	(0.2188)	(0.0611)
Meeting times	0.0564***	0.0476***	0.0513***	0.2987***	0.9512***	0.2799***
	(0.0116)	(0.0101)	(0.0103)	(0.0267)	(0.0890)	(0.0249)
Independent Director %	0.0054	0.0036	0.0043	-0.0133*	-0.0520*	-0.0126*
	(0.0036)	(0.0031)	(0.0032)	(0.0075)	(0.0266)	(0.0074)
Management holding	-0.0211***	-0.0173***	-0.0183***	0.0005	-0.0002	-0.0062
	(0.0048)	(0.0044)	(0.0043)	(0.0094)	(0.0343)	(0.0097)
Duality	-0.4023*	-0.4007**	-0.3662*	-0.4131	-0.8284	-0.3604
	(0.2219)	(0.1941)	(0.1970)	(0.4987)	(1.7025)	(0.4768)

National owned	-0.0362	-0.0215	-0.0280	-0.8488	-2.7015	-0.7493
	(0.2671)	(0.2336)	(0.2372)	(0.5835)	(2.0132)	(0.5632)
National*duality	0.0871	0.0886	0.0875	0.1040	0.0704	0.0612
	(0.2785)	(0.2436)	(0.2473)	(0.6086)	(2.1014)	(0.5880)
QFII	0.0176	0.0163	0.0182*	-0.0805**	-0.4138***	-0.0913***
	(0.0122)	(0.0106)	(0.0108)	(0.0362)	(0.1071)	(0.0298)
SSF	-0.1121	0.0131	-0.0415	0.8604***	2.0888**	0.5707**
	(0.1000)	(0.0875)	(0.0888)	(0.3234)	(0.9366)	(0.2611)
SF	0.0014	0.0053	0.0034	-0.1003	-0.3239*	-0.0861
	(0.0246)	(0.0213)	(0.0218)	(0.0675)	(0.1979)	(0.0552)
SIF	0.0150	0.0175	0.0149	0.4705***	1.0875***	0.3093***
	(0.0129)	(0.0113)	(0.0115)	(0.0397)	(0.1174)	(0.0327)
Top5	0.0064	0.0053	0.0053	0.3523***	1.0523***	0.2879***
	(0.0089)	(0.0078)	(0.0079)	(0.0221)	(0.0700)	(0.0196)
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
N	2098	2078	2098	7458	7458	7458

Notes: The corresponding estimates of standard errors are reported below each coefficient. ***, **, * indicate significance at the 1%, 5%, and 10% level, respectively.

Table 4: Institutional investors benefit from acquisition, equation 5a-b

PROBIT	DROA (<=10%)	DROA (>=90%)	DEPS (<=10%)	DEPS (>=90%)
QFII	-0.0049	0.0378***	-0.0100	0.0311***
	(0.0106)	(0.0117)	(0.0107)	(0.0110)
SSF	0.1919*	0.1028	0.1126	0.1090
	(0.1020)	(0.0851)	(0.0915)	(0.0757)
SF	-0.0353	-0.1042	-0.0337	-0.0475
	(0.0447)	(0.0768)	(0.0462)	(0.0671)
SIF	-0.0644***	0.0107	-0.0119	0.0445***
	(0.0156)	(0.0118)	(0.0120)	(0.0106)
Top5	0.0140*	-0.0455***	0.0121	-0.0297***
	(0.0079)	(0.0098)	(0.0075)	(0.0092)
Industry dummy	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes
N	2098	2098	2098	2098
PROBIT	DROA (<=25%)	DROA (>=75%)	DEPS (<25%)	DEPS (>=75%)
QFII	0.0001	0.0231**	0.0064	0.0089
	(0.0087)	(0.0091)	(0.0088)	(0.0085)
SSF	0.0311	0.0037	0.0492	0.0522
	(0.0813)	(0.0723)	(0.0794)	(0.0707)
SF	0.0064	0.0302*	0.0217	0.0156
	(0.0164)	(0.0172)	(0.0165)	(0.0171)
SIF	-0.0260**	0.0302***	-0.0109	0.0580***
	(0.0103)	(0.0092)	(0.0099)	(0.0092)
Top5	0.0122*	-0.0256***	0.0017	0.0009
	(0.0066)	(0.0071)	(0.0067)	(0.0065)
Industry dummy	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes
N	2098	2098	2098	2098

Notes: The corresponding estimates of standard errors are reported below each coefficient. ***, **, * indicate significance at the 1%, 5%, and 10% level, respectively.

Table 5a: Regression analysis on acquisition scale, acquiring sample, Frisch-Waugh-Lovell model

Step 1 regression with industry and year dummies

	LnAS	QFII	SSF	SF	SIF	Top5
Log sale	0.0009	-0.0665***	-0.0014	0.0045	0.0196	-0.0552**
	(0.0063)	(0.0156)	(0.0015)	(0.0060)	(0.0125)	(0.0225)
Log cash holding	0.1677***	0.4002***	0.0288***	0.0461	0.2858***	0.7087***
	(0.0336)	(0.0837)	(0.0080)	(0.0323)	(0.0671)	(0.1211)
Log intangible asset	-0.0213**	0.0598**	-0.0008	0.0020	-0.0196	0.0294
	(0.0095)	(0.0237)	(0.0023)	(0.0092)	(0.0190)	(0.0344)
Leverage	0.3847	-2.0726***	0.0211	-0.0752	1.0485**	-1.2250
	(0.2410)	(0.6005)	(0.0572)	(0.2319)	(0.4813)	(0.8686)
Log capital expenditure	0.2373***	0.5134***	0.0151**	0.0277	0.2088***	0.6203***
	(0.0287)	(0.0716)	(0.0068)	(0.0276)	(0.0574)	(0.1035)
Cash dividend	0.4774	-0.6311	0.1385*	0.0167	5.1602***	3.1529***
	(0.3060)	(0.7625)	(0.0727)	(0.2945)	(0.6112)	(1.1030)
Tobin's Q	0.1413***	0.0521	0.0033	0.0286	-0.0404	-0.2208
	(0.0429)	(0.1069)	(0.0102)	(0.0413)	(0.0857)	(0.1546)
Board size	0.0709**	0.1854**	0.0139**	-0.0221	0.0143	0.2127**
	(0.0292)	(0.0729)	(0.0069)	(0.0281)	(0.0584)	(0.1054)
Meeting times	0.0581***	0.0711**	0.0038	0.0130	0.0205	0.0793*
	(0.0116)	(0.0288)	(0.0027)	(0.0111)	(0.0231)	(0.0417)
Independent Director %	0.0060*	0.0212**	0.0002	-0.0042	0.0035	0.0256**
	(0.0036)	(0.0089)	(0.0009)	(0.0034)	(0.0072)	(0.0129)
Management holding	-0.0214***	-0.0038	0.0011	-0.0014	0.0028	-0.0202
	(0.0048)	(0.0120)	(0.0011)	(0.0047)	(0.0097)	(0.0174)
Duality	-0.4069*	-0.4352	0.0007	-0.0484	0.3686	-0.3600
	(0.2221)	(0.5533)	(0.0527)	(0.2137)	(0.4435)	(0.8004)
National owned	-0.0424	-0.2543	-0.0054	-0.0905	0.2886	-1.0269
	(0.2673)	(0.6660)	(0.0635)	(0.2572)	(0.5338)	(0.9634)
National*duality	0.1083	0.9132	-0.0106	0.2071	-0.2896	1.2634
	(0.2787)	(0.6944)	(0.0662)	(0.2682)	(0.5566)	(1.0044)
R-squared	0.171	0.120	0.056	0.011	0.185	0.286
N	2098	2098	2098	2098	2098	2098

Step 2 regression of residuals

Dependent variable	QFII	SSF	SF	SIF	Top5
= log form annual acquisition size	0.0176	-0.1121	0.0014	0.0150	0.0064
	(0.0121)	(0.0993)	(0.0244)	(0.0128)	(0.0089)

Table 5b: Regression analysis on acquisition scale, full sample, Frisch-Waugh-Lovell model

Step 1 regression with industry and year dummies

	LnAS	QFII	SSF	SF	SIF	Top5
Log sale	0.0364**	-0.0265***	0.0004	-0.0005	0.0128**	-0.0014
	(0.0154)	(0.0059)	(0.0006)	(0.0027)	(0.0052)	(0.0112)
Log cash holding	0.2085***	0.1534***	0.0130***	0.0433***	0.1531***	0.3106***
	(0.0760)	(0.0292)	(0.0028)	(0.0132)	(0.0258)	(0.0551)
Log intangible asset	0.0431**	0.0170**	-0.0003	0.0019	0.0028	0.0310**
	(0.0194)	(0.0075)	(0.0007)	(0.0034)	(0.0066)	(0.0141)
Leverage	0.0234	0.0081	0.0102	0.0084	0.1693**	0.2642
	(0.2338)	(0.0899)	(0.0087)	(0.0406)	(0.0794)	(0.1696)
Log capital expenditure	0.4384***	0.1924***	0.0083***	0.0107	0.1240***	0.3288***
	(0.0635)	(0.0244)	(0.0024)	(0.0110)	(0.0216)	(0.0461)
Cash dividend	0.0164	-0.3835	0.0652**	-0.1862	2.4965***	0.3733
	(0.7236)	(0.2783)	(0.0268)	(0.1255)	(0.2458)	(0.5247)
Tobin's Q	-0.2415***	0.0052	-0.0060*	-0.0003	-0.0619**	-0.1188*
	(0.0904)	(0.0348)	(0.0033)	(0.0157)	(0.0307)	(0.0655)
Board size	-0.0774	0.0969***	0.0029	-0.0184	0.0002	0.1122**
	(0.0666)	(0.0256)	(0.0025)	(0.0115)	(0.0226)	(0.0483)
Meeting times	0.4085***	0.0630***	0.0057***	0.0101**	0.0801***	0.2080***
	(0.0282)	(0.0109)	(0.0010)	(0.0049)	(0.0096)	(0.0205)
Independent Director %	-0.0136*	0.0081***	-0.0002	-0.0028**	-0.0016	0.0031
	(0.0080)	(0.0031)	(0.0003)	(0.0014)	(0.0027)	(0.0058)
Management holding	-0.0133	-0.0010	-0.0000	-0.0016	-0.0063*	-0.0314***
	(0.0100)	(0.0039)	(0.0004)	(0.0017)	(0.0034)	(0.0073)
Duality	-0.3240	-0.1792	-0.0044	0.0161	0.1225	0.0638
	(0.5325)	(0.2048)	(0.0197)	(0.0923)	(0.1809)	(0.3861)
National owned	-1.0794*	-0.0340	-0.0203	-0.0090	-0.0765	-0.5132
	(0.6230)	(0.2396)	(0.0231)	(0.1080)	(0.2116)	(0.4518)
National*duality	0.1731	0.3116	0.0110	0.0620	0.0182	0.2340
	(0.6498)	(0.2499)	(0.0240)	(0.1127)	(0.2208)	(0.4712)
R-squared	0.070	0.047	0.033	0.009	0.122	0.175
N	7458	7458	7458	7458	7458	7458

Step 2 regression of residuals

Dependent variable=	QFII	SSF	SF	SIF	Top5
log form annual acquisition size	-0.0805**	0.8604***	-0.1003	0.4705***	0.3523***
	(0.0361)	(0.3228)	(0.0674)	(0.0397)	(0.0221)

Notes: The corresponding estimates of standard errors are reported below each coefficient. ***, **, * indicate significance at the 1%, 5%, and 10% level, respectively.

Figure 1 Acquisition decision process and post-acquisition performance

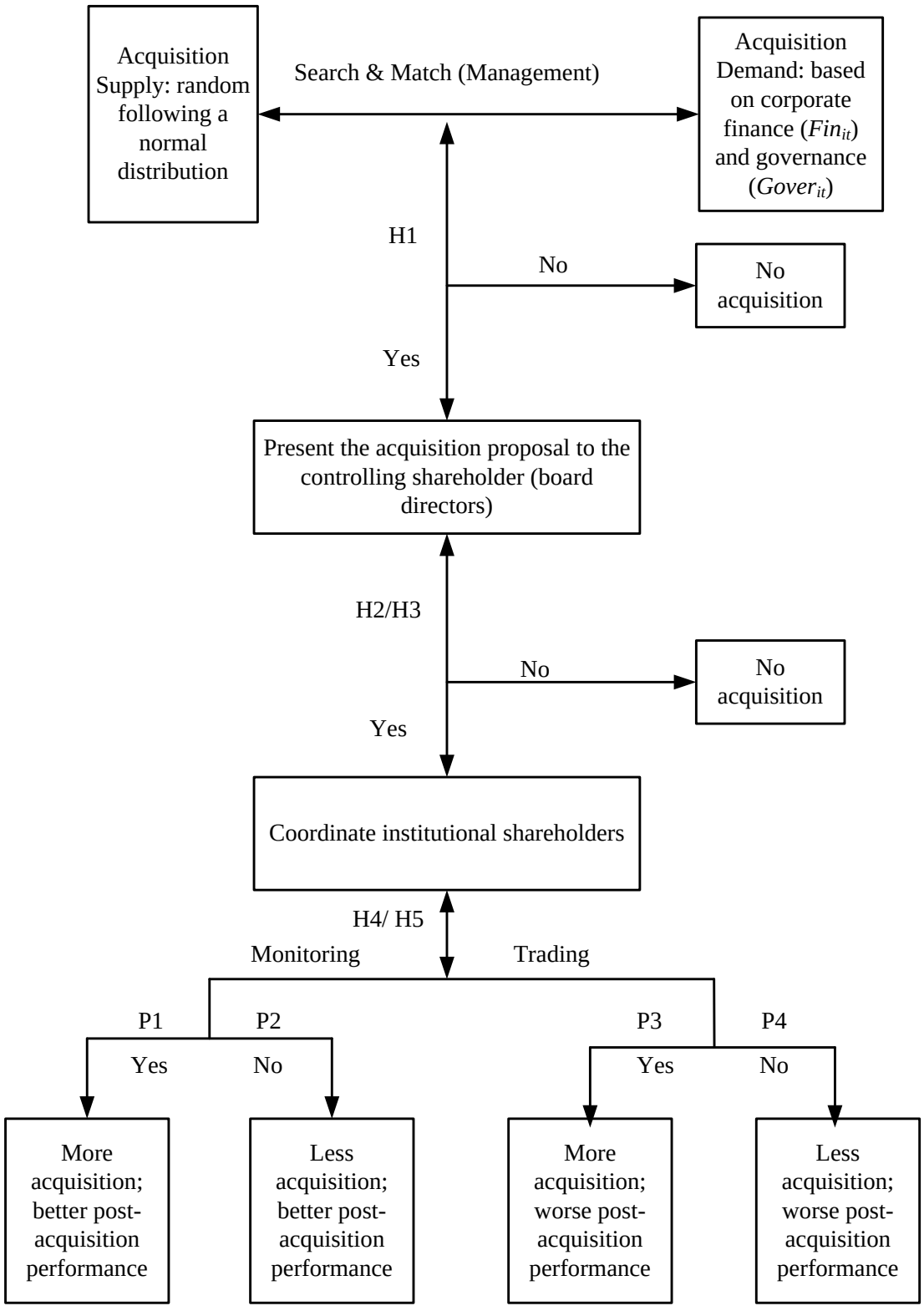
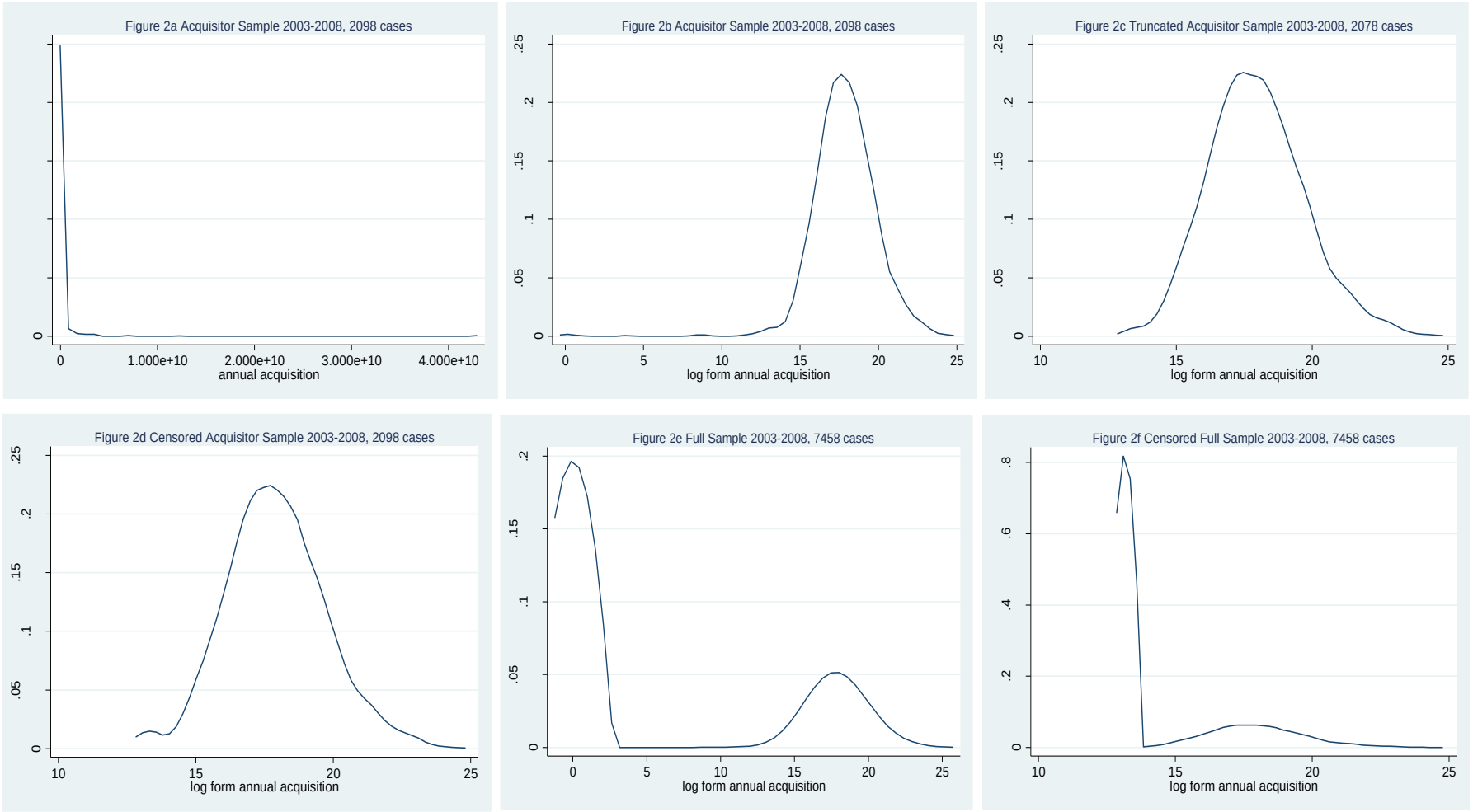


Figure 2 The truncated and censored data of annual acquisition size, Chinese PLCs 2003-2008



Data source: the CCER PLC database 2003-2008.